

In re Application of: Eran FINE
Serial No.: 10/538,173
Filed: August 7, 2006
Office Action Mailing Date: August 24, 2007

Examiner: Omar R. Rojas
Group Art Unit: 2874
Attorney Docket: 30063

In the Claims:

1-89. (Cancelled)

90. (Currently Amended) A flexible waveguide capable of propagating and emitting light, comprising:

a flexible material shaped as a sheet and having a surface and an end, a plurality of particles distributed in said flexible material in an increasing concentration such that wherein a first portion of the light is scattered by said particles and emitted through at least a portion of a said surface of said sheet to provide a light gradient emanating from said surface~~the flexible waveguide, and a second portion of the light is emitted through said end.~~

91. (Previously Presented) The waveguide of claim 90, wherein said flexible material is elastic.

92. (Previously Presented) The waveguide of claim 91, wherein said flexible material is characterized by an elasticity of at least 100 %.

93. (Previously Presented) The waveguide of claim 91, wherein said flexible material is characterized by tensile set value of less than about 5 %.

94. (Previously Presented) The waveguide of claim 92, wherein said flexible material is transparent.

95. (Previously Presented) The waveguide of claim 90, wherein said flexible material comprises a polymeric material.

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96. (Previously Presented) The waveguide of claim 95, wherein said polymeric material comprises a rubbery material.

97. (Previously Presented) The waveguide of claim 95, wherein said flexible material has a predetermined level of cross-linking.

98. (Previously Presented) The waveguide of claim 97, wherein said cross-linking is physical cross-linking.

99. (Previously Presented) The waveguide of claim 97, wherein said cross-linking is chemical cross-linking.

100. (Previously Presented) The waveguide of claim 97, wherein said cross-linking is a combination of physical cross-linking and chemical cross-linking.

101. (Previously Presented) The waveguide of claim 90, wherein said flexible material comprises a dielectric material, and further wherein a reflection coefficient of said dielectric material is selected so as to allow propagation of polarized light through the waveguide, and emission of said polarized light through said surface of the waveguide.

102. (Previously Presented) The waveguide of claim 90, wherein said flexible material is a multilayered material.

103. (Previously Presented) The waveguide of claim 90, wherein said flexible material comprises a first layer having a first refractive index, and a second layer being in contact with said first layer and having a second refractive index being larger than said first refractive index.

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104. (Previously Presented) The waveguide of claim 103, wherein at least one of: a thickness of said first layer, a thickness of said second layer, said first refractive index and said second refractive index, is selected so that the light propagates at a predetermined propagation angle.

105. (Previously Presented) The waveguide of claim 103, wherein said propagation angle is from about 5 degrees to about 30 degrees.

106. (Previously Presented) The waveguide of claim 103, wherein said second layer comprises polyisoprene.

107. (Previously Presented) The waveguide of claim 103, wherein said flexible material further comprises a third layer for being in contact with said second layer and having a third refractive index being smaller than said second refractive index.

108. (Previously Presented) The waveguide of claim 103, wherein said at least a portion of said surface comprises a predetermined pattern.

109. (Previously Presented) The waveguide of claim 103, wherein at least one of said first and said second layers comprises at least one additional component designed and configured so as to allow said emission of the light through said at least a portion of said surface and capable of producing different optical responses to different wavelengths of the light.

110. (Previously Presented) The waveguide of claim 109, wherein said different optical responses comprises different emission angles or different emission wavelengths.

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111. (Previously Presented) The waveguide of claim 107, wherein said third layer comprises at least one additional component designed and configured so as to allow said emission of the light through said at least a portion of said surface.

112-113. (Cancelled)

114. (Currently Amended) The waveguide of claim ~~110~~ 111, wherein said at least one additional component comprises at least one diffractive optical element, said at least one diffractive optical element being for diffracting said first portion of the light to thereby emit said first portion through said at least a portion of said surface.

115. (Previously Presented) The waveguide of claim 114, wherein said at least one diffractive optical element is selected from the group consisting of a non-smooth surface of said second layer, a mini-prism and a diffraction grating.

116. (Previously Presented) The waveguide of claim 114, wherein a location of said at least one diffractive optical element is selected such that said first portion of said light is emitted from a predetermined region of said surface area.

117. (Previously Presented) The waveguide of claim 116, wherein said predetermined region of said surface area comprises a predetermined pattern.

118. (Previously Presented) The waveguide of claim 115, wherein said at least one diffractive optical element is designed and constructed to selectively diffract a predetermined range of wavelengths of the light.

119. (Currently Amended) The waveguide of claim ~~110~~ 111, wherein said at least one additional component comprises at least one region of high refractive index,

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present in said first layer and/or in said third layer, said high refractive index being selected such that said portion of said light is emitted through said at least a portion of said surface.

120. (Previously Presented) The waveguide of claim 119, wherein a location of at least one region of said high refractive index is selected such that said first portion of said light is emitted from a predetermined pattern of said surface area.

121. (Currently Amended) A flexible waveguide capable of propagating and emitting light, comprising:

a flexible material shaped as a sheet and having a surface and an end, the flexible waveguide comprising at least one component designed and configured to allow emission of the light through at least a portion of said surface,

wherein said at least one component is sensitive to temperature, moisture and/or electromagnetic field such that a change in ambient temperature, moisture and/or electromagnetic field results in a change in a color and/or intensity of light emitted from said surface.

~~impurity capable of scattering a first portion of the light so that said first portion of the light is emitted through at least a portion of said surface of the flexible waveguide, while a second portion of the light is emitted through said end.~~

122. (Cancelled)

123. (Currently Amended) A method of providing illumination, the method comprising:

providing a flexible material shaped as a sheet and having a plurality of particles distributed in said flexible material in an increasing concentration~~a surface and an end; and~~

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propagating light through said flexible material so as to provide a light gradient emanating from a surface of said sheet;

~~emitting a first portion of said light through at least a portion of said surface;~~

and

~~emitting a second portion of said light through said end.~~

124. (Cancelled)

125. (New) A flexible waveguide capable of propagating and emitting light, comprising:

a flexible material having a surface and an end, said flexible material comprising a first layer having a first refractive index, and a second layer being in contact with said first layer and having a second refractive index being larger than said first refractive index,

wherein a first portion of the light is emitted through a predetermined pattern on said surface of the flexible waveguide and a second portion of the light is emitted through said end.

126. (New) The waveguide of claim 125, wherein said flexible material comprises at least one component designed and configured to allow said emission of the light through said predetermined pattern, wherein said at least one component is selected such that variations in a color of the light results in variations in said predetermined pattern.

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Amendments to the Drawings:

An attached sheet of drawings which includes Figures 10 and 11. Figure 10 is a drawing substantially identical to Figure 10 as originally filed, and Figure 11 is a drawing replacing original Figure 11 which is a photocopy of a photograph. All elements in amended Figure 11 were included in Figure 11 as originally filed.

Applicants respectfully transverse the requirement to replace the photography of figures 12 and 13 with sketched figures since any sketches prepared by a draftsman will not properly convey the desired illumination that is shown in the photographs.